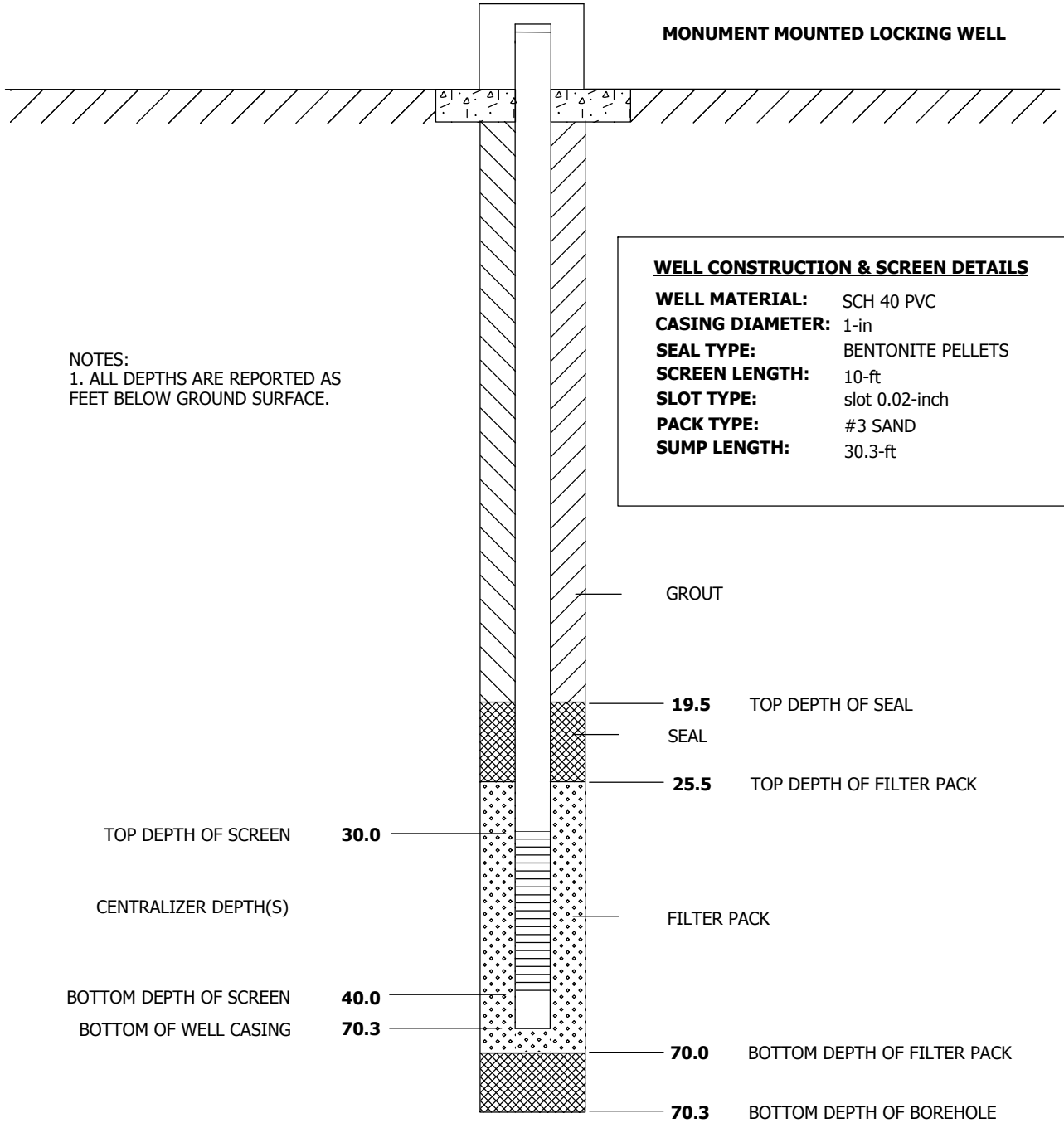
WELL COMPLETION DIAGRAM

PROJECT NO: 315024.IM.02	**PROJECT:** PG&E Topock IM Investigation (Phase 5 2004)	**WELL NO:** **MW-39-040**

LOCATION: Floodplain well field Topock, CA. - Central dune area, approximately 300' north of railroad, 150' east of extraction well bench.

DRILLING CONTRACTOR: Prosonic Corp. Maretta, OH	**DRILLING START DATE:** ---
DRILLING METHOD: Rotosonic	**DRILLING END DATE:** ---
LOGGER: J. Wellmeyer	**WELL COMPLETION DATE:** 04/29/2004
TOP OF WELL CASING (NGVD 29): 468.02	**NORTHING COORDINATE (CCS DAND 27, ZONE 5):** 2102506.22
GROUND SURFACE ELEVATION (NGVD 29): 465.20	**EASTING COORDINATE (CCS NAD 27 ZONE 5):** 7616091.44



WELL CONSTRUCTION & SCREEN DETAILS

WELL MATERIAL:	SCH 40 PVC
CASING DIAMETER:	1-in
SEAL TYPE:	BENTONITE PELLETS
SCREEN LENGTH:	10-ft
SLOT TYPE:	slot 0.02-inch
PACK TYPE:	#3 SAND
SUMP LENGTH:	30.3-ft

NOTES:
1. ALL DEPTHS ARE REPORTED AS FEET BELOW GROUND SURFACE.

WELL DIAGRAM IS NOT TO SCALE

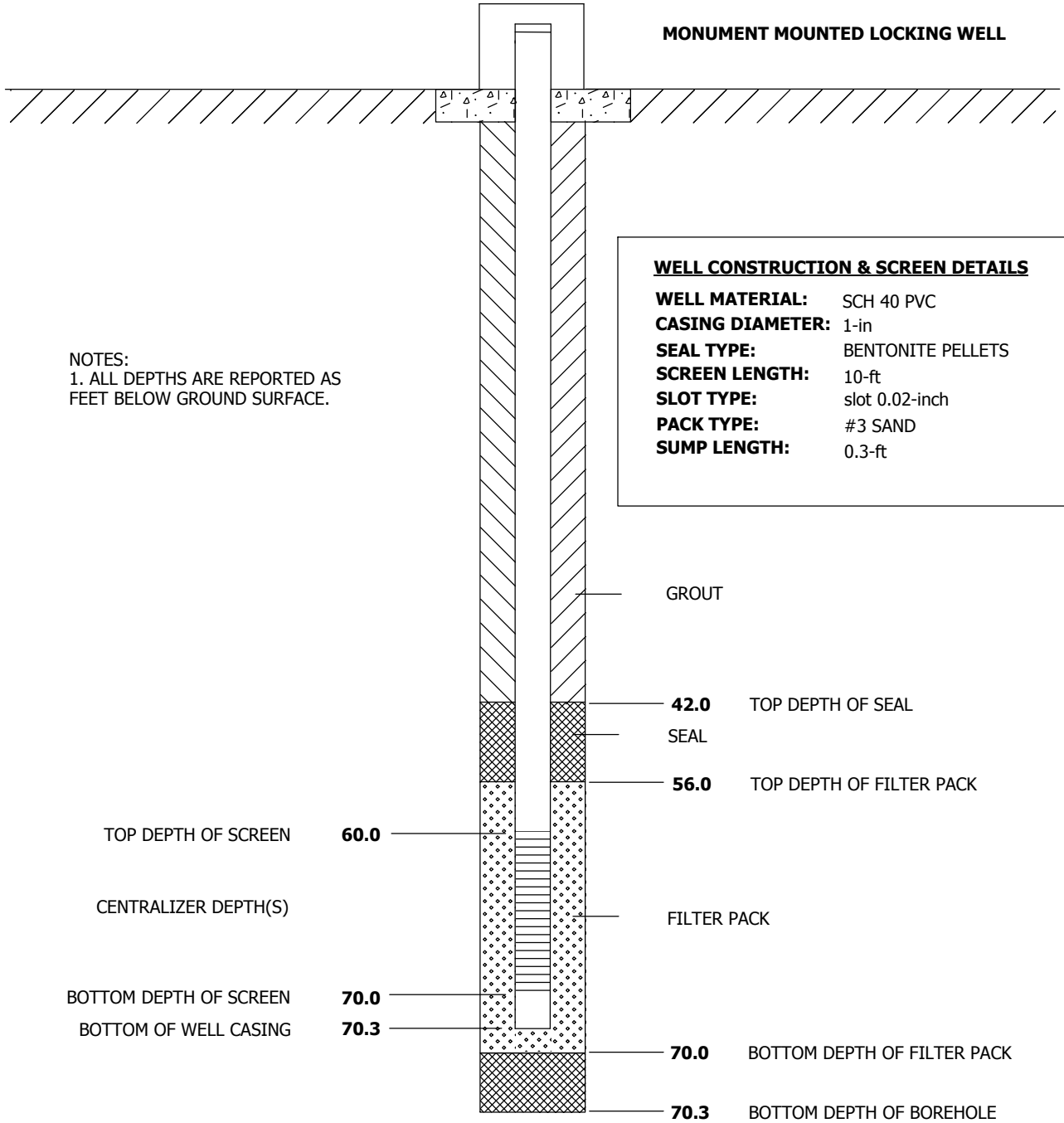
CH2MHILL

WELL COMPLETION DIAGRAM

PROJECT NO: 315024.IM.02	**PROJECT:** PG&E Topock IM Investigation (Phase 5 2004)	**WELL NO:** **MW-39-070**

LOCATION: Floodplain well field Topock, CA. - Central dune area, approximately 300' north of railroad, 150' east of extraction well bench.

DRILLING CONTRACTOR: Prosonic Corp. Maretta, OH	**DRILLING START DATE:** ---
DRILLING METHOD: Rotosonic	**DRILLING END DATE:** ---
LOGGER: J. Wellmeyer	**WELL COMPLETION DATE:** 04/29/2004
TOP OF WELL CASING (NGVD 29): 468.02	**NORTHING COORDINATE (CCS DAND 27, ZONE 5):** 2102506.30
GROUND SURFACE ELEVATION (NGVD 29): 465.20	**EASTING COORDINATE (CCS NAD 27 ZONE 5):** 7616091.38



WELL CONSTRUCTION & SCREEN DETAILS

WELL MATERIAL:	SCH 40 PVC
CASING DIAMETER:	1-in
SEAL TYPE:	BENTONITE PELLETS
SCREEN LENGTH:	10-ft
SLOT TYPE:	slot 0.02-inch
PACK TYPE:	#3 SAND
SUMP LENGTH:	0.3-ft

NOTES:
1. ALL DEPTHS ARE REPORTED AS FEET BELOW GROUND SURFACE.

WELL DIAGRAM IS NOT TO SCALE

CH2MHILL

SHEET 1 of 4	**PROJECT NUMBER:** 315024.IM.02	**BORING NUMBER:** MW-39

SOIL BORING LOG

PROJECT NAME: PG&E Topock IM Investigation (Phase 1 2004)		**HOLE DEPTH (ft):** 118.3	**DRILLING CONTRACTOR:** Prosonic Corp. Maretta, OH
SURFACE ELEVATION: 465.3 ft. MSL	**NORTHING (CCS NAD 27 Z 5):** 2,102,494.95	**EASTING (CCS NAD 27 Z 5):** 7,616,099.30	**DATE AND TIME STARTED:** 04/19/2004 / **DATE AND TIME COMPLETED:** 04/20/2004
DRILLING METHOD: Rotosonic		**WATER LEVEL (ft):** ---	**DRILLING EQUIPMENT:** Limited Access Rig with continuous 4 core, 6 casing
LOCATION: Floodplain well field Topock, CA. - Central dune area, approximately 300' north of railroad, 150' east of extraction well bench.			**LOGGED BY:** J. Wellmeyer

DEPTH BGS (feet)	SAMPLE INTERVAL	SAMPLE TYPE/ NUMBER	SAMPLE RECOVERY (ft)	USCS CODE	SOIL DESCRIPTION SOIL NAME, USCS SYMBOL, COLOR, PERCENT COMPOSITION, GRADING, GRAIN SHAPE, MINERALOGY, DENSITY/CONSISTENCY, STRUCTURE, MOISTURE.	COMMENTS DRILLING OBSERVATIONS AND OPERATIONS, DAILY START AND END TIMES , DRILL RATE, REFUSALS, SAMPLING AND TESTING NOTES.
					POORLY GRADED SAND (SP) - lt yellowish brn 10YR6/4, f-m sand, well rnd, qtz, loose, some moisture-dry.	4/19/04, 13:15 begin drilling pilot hole
5		CC90	8			
				SP		
10						
		CC91	10		- f-m sand, some organic material, well rnd, qtz, loose	saturated
15						
				SC	**CLAYEY SAND (SC)** - dk brn sand with dk gray clay 7.5YR3/2, f-m sand, well rnd, loose.	
				CL	**CLAY WITH SAND (CL)** - dk brn 7.5YR3/2, 10% f sand, some organic material, soft, f black laminations.	
20						
		CC92	10	SC	**CLAYEY SAND (SC)** - dk brn sand with dk gray clay 7.5YR3/2, f-m sand, well rnd, loose. - organic mat	
				CL	**CLAY WITH SAND (CL)** - dk brn 7.5YR3/2, 10% f sand, some organic material, soft, f black laminations.	
25				SP	**POORLY GRADED SAND (SP)** - yellowish brn, 70% m sand, 30% f sand, fining upward, well rnd, loose, wet.	
				SP/SC	**POORLY GRADED SAND WITH CLAY (SP/SC)** - dk grayish brn 7.5YR3/2, 20% clay, m sand, fining upward, well rnd.	
30				SP	**POORLY GRADED SAND (SP)** - dk brn 7.5YR3/2, f-m sand, trace fines, well rnd, qtz, loose, wet.	
					WELL GRADED SAND (SW) - yellowish brn, f-c sand, well rnd, qtz, soft, wet.	
		CC93	10	SW	- firming	
35						

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PROJECT NUMBER:	BORING NUMBER:
315024.IM.02	MW-39

SOIL BORING LOG

PROJECT NAME: PG&E Topock IM Investigation (Phase 1 2004)		**HOLE DEPTH (ft):** 118.3	**DRILLING CONTRACTOR:** Prosonic Corp. Maretta, OH
SURFACE ELEVATION: 465.3 ft. MSL	**NORTHING (CCS NAD 27 Z 5):** 2,102,494.95	**EASTING (CCS NAD 27 Z 5):** 7,616,099.30	**DATE AND TIME STARTED:** 04/19/2004 / **DATE AND TIME COMPLETED:** 04/20/2004
DRILLING METHOD: Rotosonic		**WATER LEVEL (ft):** ---	**DRILLING EQUIPMENT:** Limited Access Rig with continuous 4 core, 6 casing
LOCATION: Floodplain well field Topock, CA. - Central dune area, approximately 300' north of railroad, 150' east of extraction well bench.			**LOGGED BY:** J. Wellmeyer

DEPTH BGS (feet)	SAMPLE INTERVAL	SAMPLE TYPE/ NUMBER	SAMPLE RECOVERY (ft)	USCS CODE	SOIL DESCRIPTION SOIL NAME, USCS SYMBOL, COLOR, PERCENT COMPOSITION, GRADING, GRAIN SHAPE, MINERALOGY, DENSITY/CONSISTENCY, STRUCTURE, MOISTURE.	COMMENTS DRILLING OBSERVATIONS AND OPERATIONS, DAILY START AND END TIMES , DRILL RATE, REFUSALS, SAMPLING AND TESTING NOTES.
				SW	**WELL GRADED SAND (SW)** - yellowish brn, f-c sand, well rnd, qtz, soft, wet.	
					- thin black organic laminations, loose	
					- dark gray brn, f-c sand, fining upwards, well rnd, loose, wet	
40						
		CC94	10	CH	**FAT CLAY (CH)** - dk grayish brn 10YR4/2, f black organic lamination, soft-firm, greasy.	
				SP	**POORLY GRADED SAND (SP)** - dk grayish brn, mostly rnd qtz c sand, 5% subang mm gravel up to 0.25, clay pockets, some organics, fining upwards, loose.	
45				GW	**WELL GRADED GRAVEL (GW)** - brn, f gravel, cobbles, sand, trace fines, very well rnd, clast supported.	
				CL	**CLAY WITH COBBLES (CL)** - brn 10YR4/3, orange iron staining, 10% sand, trace silt, large cobbles, some laminated organics.	
				SP	**POORLY GRADED SAND (SP)** - dk grayish brn, m sand, thin clay pockets, well rnd, soft, wet.	
50						
		CC95	10	ML	**SILT WITH GRAVEL (ML)** - brn, 40% ang gravel up to 1.75, silt supported, partially cemented, soft, wet at depth.	
55						
				SP	**POORLY GRADED SAND (SP)** - brn, f sand, 5% silt, cobbles up to 2, subrnd, soft, loose, wet.	
					- sparse gravel, 4 basalt cobble	
60						refusal, hard drilling chatter
		CC96	10	GW	**WELL GRADED GRAVEL (GW)** - dk brn 7.5YR3/4, gravels up to 2.5, m-c sand, 5% fines, subrnd to ang, mm and volcanic clasts, loose, clast supported, musky odor, wet.	
65						
					- dark reddish brn 5YR3/3, subround to ang gravels up to 1.5, 10% fines, metamorphic clasts, clast supported.	
70						hard drilling

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PROJECT NUMBER:	BORING NUMBER:
315024.IM.02	MW-39

SOIL BORING LOG

PROJECT NAME: PG&E Topock IM Investigation (Phase 1 2004)		**HOLE DEPTH (ft):** 118.3	**DRILLING CONTRACTOR:** Prosonic Corp. Maretta, OH	
SURFACE ELEVATION: 465.3 ft. MSL	**NORTHING (CCS NAD 27 Z 5):** 2,102,494.95	**EASTING (CCS NAD 27 Z 5):** 7,616,099.30	**DATE AND TIME STARTED:** 04/19/2004	**DATE AND TIME COMPLETED:** 04/20/2004
DRILLING METHOD: Rotosonic		**WATER LEVEL (ft):** ---	**DRILLING EQUIPMENT:** Limited Access Rig with continuous 4 core, 6 casing	
LOCATION: Floodplain well field Topock, CA. - Central dune area, approximately 300' north of railroad, 150' east of extraction well bench.			**LOGGED BY:** J. Wellmeyer	

DEPTH BGS (feet)	SAMPLE INTERVAL	SAMPLE TYPE/ NUMBER	SAMPLE RECOVERY (ft)	USCS CODE	SOIL DESCRIPTION SOIL NAME, USCS SYMBOL, COLOR, PERCENT COMPOSITION, GRADING, GRAIN SHAPE, MINERALOGY, DENSITY/CONSISTENCY, STRUCTURE, MOISTURE.	COMMENTS DRILLING OBSERVATIONS AND OPERATIONS, DAILY START AND END TIMES , DRILL RATE, REFUSALS, SAMPLING AND TESTING NOTES.
75		CC97	10	GW	**WELL GRADED GRAVEL (GW)** - dk brn 7.5YR3/4, gravels up to 2.5, m-c sand, 5% fines, subrnd to ang, mm and volcanic clasts, loose, clast supported, musky odor, wet. - cemented sands & gravels up to 2 fining upwards, silt increasing to 15%, green mm	
80		CC98	9			hard drilling
85					- brn 7.5YR4/3	hard drilling
90		CC99	9	GM	**SILTY GRAVEL WITH SAND (GM)** - dk reddish brn 5YR3/2, 25% silt, 5% sand, subang gravels, soft to firm, gravel supported.	
95				GW	**WELL GRADED GRAVEL (GW)** - dk reddish brn 5YR3/2, pea gravel up to 1 1/2, 5% clay, rnd to ang, loose, wet.	
100		CC100	10	GW/GC	**WELL GRADED GRAVELS WITH CLAY (GW/GC)** - dk reddish brn, 30% clay, ang clasts, compacted, dry. - 25% clay, shattered gravels, green mm, clast supported, compacted, dry, dark reddish brn - 20% clay, subround to ang, fining upwards, slightly loose, moist, dark reddish brn	hard drilling stop drilling @ 17:15, resume 4/20/04, 8:20, hard drilling
105						

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:
315024.IM.02	MW-39

SOIL BORING LOG

PROJECT NAME: PG&E Topock IM Investigation (Phase 1 2004)		**HOLE DEPTH (ft):** 118.3	**DRILLING CONTRACTOR:** Prosonic Corp. Maretta, OH	
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DEPTH BGS (feet)	SAMPLE INTERVAL	SAMPLE TYPE/ NUMBER	SAMPLE RECOVERY (ft)	USCS CODE	SOIL DESCRIPTION SOIL NAME, USCS SYMBOL, COLOR, PERCENT COMPOSITION, GRADING, GRAIN SHAPE, MINERALOGY, DENSITY/CONSISTENCY, STRUCTURE, MOISTURE.	COMMENTS DRILLING OBSERVATIONS AND OPERATIONS, DAILY START AND END TIMES , DRILL RATE, REFUSALS, SAMPLING AND TESTING NOTES.
					WELL GRADED GRAVELS WITH CLAY (GW/GC) - dk reddish brn, 35% clay, some silt, subang clasts, tight and compacted, clast supported, dry.	hard drilling
110						hard drilling, drill chatter
		CC101	10	GW/GC		chatter refusal
115					- 60% clay, 35% f sand to f gravel, 5% silt, shattered, dry	
					Boring Terminated at 118.3 ft	stop 4/20/04, 10:15, bottom of boring

ABBREVIATIONS

cc = continuous core run
brn = brown
lt = light
dk = dark
vf = very fine-grained
f = fine-grained
m = medium-grained
c = coarse-grained
vc = very coarse-grained
ang = angular
subang = subangular
subrnd = subrounded
rnd = rounded
br = bedrock formation
ss = sandstone
conglom = conglomerate
comptd = compacted
qtz = quartz

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